WHAT IS CLAIMED IS:

1. A method of hyperthermally treating tissue in an animal, said method comprising the steps of:

introducing a temperature indicating substance into the bloodstream of said animal to flow through a target site, said temperature indicating substance including a fluorescent dye encapsulated within a heat sensitive liposome, said fluorescent dye being releasable from said liposome at a temperature of at least 41°C, and

applying a heat source to said target site and hyperthermally heating said target to at least 41°C to release said dye and to hyperthermally treat said target site for a time sufficient to kill cells in said tissue, and fluorescing and visualizing said dye.

2. The method of claim 1, wherein said fluorescent dye is releasable from said liposome at a temperature of at least 42°C.

3. The method of claim 1, wherein said fluorescent dye is releasable from said liposome at a temperature sufficient to kill cells in said tissue substantially without denaturing proteins in said tissue.

4. The method of claim 1, wherein said liposome encapsulates a bioactive compound, and said method comprises heating said liposome to release said bioactive compound at a temperature of at least 42°C.

5. The method of claim 4, wherein said bioactive compound is heat activated at a temperature of at least 42°C.

6. The method of claim 4, wherein said bioactive compound is an antiproliferative agent or an antitumor agent.

7. The method of claim 4, wherein said bioactive agent is selected from the group consisting of cisplatin, carboplatin, tetraplatin, iproplatin, adriamycin, mitomycin C, actinomycin, ansamitocin and bleomycin.

8. The method of claim 1, wherein said heat source is a laser source, a microwave source, an infrared source, or an ultrasonic source.

9. The method of claim 1, wherein said heat source is a heated fluid source, and where said method comprises applying said heated fluid to said target site.

10. A method of detecting a threshold temperature and of hyperthermally treating tissue in an animal, said method comprising the steps of:

introducing a first fluorescent dye encapsulated in a first heat sensitive liposome into the bloodstream of an animal in a location to flow through a target site in said animal, said first fluorescent dye being releasable from said first heat sensitive liposome at a temperature of at least 41°C,

heating said target site to a temperature to release said first fluorescent dye and fluorescing said first fluorescent dye to indicate and visualize a tissue temperature of at least 41°C, and continuing heating said target site at a temperature of at least 41°C for a time sufficient to hyperthermally treat said tissue.

11. The method of claim 10, wherein said first fluorescent dye is releasable from said first liposome at a temperature of at least 42°C and said target site is heated at least to 42°C.

12. The method of claim 10, comprising heating said tissue to a temperature sufficient to kill cells in said tissue and below a protein denaturing temperature.

13. The method of claim 10, comprising heating said target site to a temperature of at least about 42°C to about 50°C for bout 1-10 minutes.

14. The method of claim 10, wherein said first liposome encapsulates a bioactive compound, and wherein said method comprises heating said first liposome to release said bioactive compound at a temperature of at least 42°C.

15. The method of claim 14, wherein said bioactive compound is heat activated at a temperature of at least 42°C.

16. The method of claim 14, wherein said bioactive compound is an antiproliferative agent or an antitumor agent.

17. The method of claim 14, wherein said bioactive agent is selected from the group consisting of cisplatin, carboplatin, tetraplatin, iproplatin, adriamycin, mitomycin C, actinomycin, ansamitocin and bleomycin.

18. The method of claim 10, wherein said heat source is a laser source, a microwave source, an infrared source or an ultrasonic source.

19. The method of claim 10, wherein said heat source is a source of heated fluid and said method comprises applying said heated fluid to said target site.

20. The method of claim 10, further comprising the step of introducing a second fluorescent dye encapsulated in a second heat sensitive liposome into said bloodstream of said animal, said second fluorescent dye being releasable from said second liposome at a temperature of at least 50°C,

visualizing and detecting said second fluorescent dye released from said second liposomes and reducing said temperature of said tissue in response to said detected second dye.

21. The method of claim 20, wherein said second fluorescent dye is released from said second liposome at a temperature where protein denaturization occurs, and wherein said temperature of said tissue is reduced below the protein denaturization temperature in response to said detected second fluorescent dye.

22. The method of claim 20, comprising heating said tissue in said target site to a temperature below a protein denaturization temperature of said tissue and below said release temperature of said second fluorescent dye.

23. A method of hyperthermally treating tissue of an animal, said method comprising the steps of:

introducing a temperature indicating substance into the bloodstream of said animal to flow through a target site, said temperature indicating substance including a first fluorescent dye encapsulated in a first temperature sensitive liposome, said first fluorescent dye being releasable from said first liposome by heating to a temperature of at least 42°C, and a second fluorescent dye encapsulated in a second temperature sensitive liposome, said second fluorescent dye being releasable from said second liposome by heating to a temperature of at least 50°C,

heating said target site and said first temperature sensitive liposome to a temperature of at least 42°C, and fluorescing said first fluorescent dye to indicate an effective temperature for hyperthermally treating said tissue without releasing said second fluorescent dye from said second liposomes.

24. The method of claim 23, comprising detecting a fluorescence of said second fluorescent dye and reducing said temperature of said tissue below a protein denaturing temperature of said tissue.

25. The method of claim 23, wherein said first fluorescent dye fluoresces a color different from a color of said second fluorescent dye.

26. The method of claim 23, wherein said first liposome comprises a phospholipid selected from the group consisting of dipalmitoylphosphatidyl-choline, dipalmitoylpyhosphatidyl-glycerol, and mixtures thereof.

27. The method of claim 23, wherein said second liposome comprises a C_{17}-phosphatidyl-choline, wherein said second liposome releases said second fluorescent dye at a temperature of about 48°C.

28. The method of claim 23, wherein said first liposomes encapsulate a bioactive compound.

29. The method of claim 28, wherein said bioactive compound is selected from the group consisting of anti-proliferative agents and anti-tumor agents.

30. The method of claim 28, wherein said bioactive compound is cis-platin.

31. The method of claim 28, wherein said bioactive compound is a photoactivated compound, and wherein said method comprises activating said photoactivated compound to kill or inhibit multiplication of cells in said target site.

32. The method of claim 23, wherein said first temperature sensitive liposome leaks or ruptures at a temperature of about 42°C to 50°C.

33. The method of claim 23, wherein said first temperature sensitive liposomes leak or rupture at a temperature of about 45°C to about 49°C.

34. The method of claim 23, wherein said second temperature sensitive liposomes leak or rupture at a temperature of about 50°C to 60°C.